THE INVENTION CLAIMED IS:

1. A method of inspecting grinding wheels used to prepare work rolls used in metal sheet production, comprising the steps of:

rotatably supporting a grinding wheel on a test stand;

positioning an ultrasonic transmitting and receiving apparatus proximate to opposite sides of the grinding wheel;

rotating the grinding wheel on the test stand; and

passing sound waves through the grinding wheel between the opposite sides thereof to inspect the grinding wheel.

2. The method of claim 1, the ultrasonic transmitting and receiving apparatus comprising a sound transmitter and sound receiver located proximate to the opposite sides, respectively, of the grinding wheel, the step of passing sound waves through the grinding wheel further comprising passing the sound waves from the sound transmitter to the sound receiver.

3. The method of claim 1, further comprising the step of recording amplitude attenuation of the sound waves passing through the grinding wheel.

4. The method of claim 3, further comprising the steps of analyzing the amplitude attenuation of the sound waves in a computer to determine indicated density differences through the grinding wheel, and storing said indicated density differences as an indicated density profile of the grinding wheel in computer memory.

5. The method of claim 4, further comprising the step of displaying the indicated density profile on a computer screen for visual inspection.

6. The method of claim 5, wherein the computer is programmed to display at least a two dimensional image of the indicated density profile on the computer screen.

7. The method of claim 4, further comprising the step of comparing the indicated density profile of the grinding wheel with the indicated density profiles of grinding wheels of known operational quality.

8. The method of claim 1, wherein the sound waves passed to the grinding wheel are in the range of about 100 KHz to 2 MHz.

9. The method of claim 1, wherein the sound waves are passed to the grinding wheel using ambient air as the sound conducting medium.

10. A method of inspecting grinding wheels used to prepare work rolls used in metal sheet production, comprising the steps of:

rotatably supporting a grinding wheel on a test stand;

positioning an ultrasonic transmitting and receiving apparatus proximate to opposite sides of the grinding wheel;

rotating the grinding wheel on the test stand;

passing sound waves through the grinding wheel between the opposite sides thereof to inspect the grinding wheel; and

recording amplitude attenuation of the sound waves passing through the grinding wheel on a recording device or directly in a computer.

11. The method of claim 10, further comprising the steps of analyzing the amplitude attenuation of the sound waves in the computer to determine indicated density differences through the grinding wheel, and storing said indicated density differences as an indicated density profile of the grinding wheel in computer memory.

12. The method of claim 11, further comprising the step of displaying the indicated density profile on a computer screen for visual inspection.

13. The method of claim 12, wherein the computer is programmed to display at least a two dimensional image of the indicated density profile on the computer screen.

14. The method of claim 11, further comprising the step of comparing the indicated density profile of the grinding wheel with the indicated density profiles of grinding wheels of known operational quality in the computer.

15. The method of claim 10, wherein the sound waves passed to the grinding wheel are in the range of about 100 KHz to 2 MHz.

16. The method of claim 10, wherein the sound waves are passed to the grinding wheel using air as the sound conducting medium.

17. A system for inspecting grinding wheels used to prepare work rolls used in metal sheet production, comprising:

a test stand adapted to rotatably support a grinding wheel used to prepare work rolls used in metal sheet production;

an ultrasonic transmitting and receiving apparatus comprising a sound transmitter and sound receiver configured to be positioned proximate to opposite sides of the grinding wheel, respectively, the sound transmitter adapted to pass sound waves through the grinding wheel that are subsequently received by the sound receiver during operation of the ultrasonic transmitting and receiving apparatus; and

a recording device or computer operatively connected to the ultrasonic transmitting and receiving apparatus and configured to record amplitude attenuation of the sound waves passed through the grinding wheel.

18. The system of claim 17, wherein the computer is programmed to analyze the amplitude attenuation of the sound waves to determine indicated density differences through the grinding wheel and store said indicated density differences as an indicated density profile in computer memory.

19. The system of claim 18, wherein the computer comprises a computer screen for displaying the indicated density profile for visual inspection.

20. The system of claim 19, wherein the computer is programmed to display at least a two dimensional image of the indicated density profile of an inspected grinding wheel on the computer screen.

21. The system of claim 18, wherein the computer is programmed to compare the indicated density profile of an inspected grinding wheel with the indicated density profiles of grinding wheels of known operational quality.

22. The system of claim 17, wherein the sound waves are coupled to the grinding wheel to be inspected using ambient air as the sound conducting medium during operation of the ultrasonic transmitting and receiving apparatus.

23. The system of claim 17, wherein the sound transmitter is adapted to generate sound waves in the range of about 100KHz to 2MHz.